research dialogue

TIAA-CREF INSTITUTE

RECENT TRENDS IN THE SELECTION OF RETIREMENT INCOME STREAMS AMONG TIAA-CREF PARTICIPANTS

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Upon reaching retirement, TIAA-CREF participants can choose from a variety of options to begin receiving an income stream from their accumulated pension assets. This article presents updated data and analysis regarding the income choices made by TIAA-CREF participants throughout the 1990s, building on the information presented in an earlier issue of *Research Dialogue* (King, 1996). The data presented here show a striking and uniform movement away from the use of the life annuity as a payout option from 1989-2001 following the introduction of nonannuity payout options. While there is perhaps no single explanation for this trend, the changing nature of retirement in higher education may be a key factor.

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>>>INTRODUCTION

In all defined-contribution (DC) pension systems, plan participants accumulate assets over time to spend them in retirement. In both the popular press and the academic literature, there has been a great deal of focus on the question of whether individuals are accumulating sufficient or adequate sums to replace income in retirement (see, for example, Mitchell and Moore, 2001; Engen, Gale, and Uccello, 1999; Warshawsky and Ameriks, 2000; Wolff, 2002; and Holden and VanDerhei, 2002).

There has been significantly less focus on how individuals are choosing to use their accumulated assets to provide income in retirement. Most assessments of income adequacy from DC pension plans are based on the **assumption** that retirees will receive their retirement benefits in the form of a life annuity (for example, Holden and VanDerhei, 2002). Increasingly, however, the form of benefits arising from assets accumulated in DC pensions has become a matter of individual choice.

Until 1989, TIAA-CREF essentially provided a single form of retirement benefit to participants: the immediate life annuity. The letters "TIAA" stand for "Teachers Insurance and Annuity Association;" the name of the organization underscores the primary role that annuities have had in the provision of retirement benefits to TIAA-CREF participants since TIAA's inception in 1918. However, since 1989, TIAA-CREF has made several nonannuity forms of payouts available to participants.

Since the introduction of nonannuity payout methods in 1989, data on the selection of income streams among TIAA-CREF participants reveal two major trends:¹

- An increasing number of "retired" participants are postponing the decision to take any form of income stream from their accumulated retirement assets.
- Among those participants who began to receive retirement income streams, the use of the life annuity as a payout vehicle has declined significantly.

This article begins with a brief discussion of the retirement patterns among TIAA-CREF participants and the changing nature of retirement in higher education. It then provides some background on various income options currently available to TIAA-CREF participants, and reviews the aggregate trends in the selection of the various options over time. It breaks down the various annuity choices by demographic characteristics, including age and gender, and discusses patterns in the selection of nonannuity options. The article concludes with a summary and discussion of some possible implications of the observed trends.

>>> RETIREMENT RATES AND THE CHANGING NATURE OF RETIREMENT

Basic patterns in TIAA-CREF data with regard to retirement of participants from 1987 through 1996 are presented in an earlier issue of Research Dialogue (Ameriks, 1999). The data in that study show that from the period 1987-1993 to 1994-1996, there was a large decline in the retirement rates of those age 69 and above, apparently related to the end of mandatory retirement in higher education in 1994. The study also showed that over the entire period 1987-1996, there was very little change in the retirement rates among participants under age 69. A more detailed study of faculty members (Ashenfelter and Card, 2002) shows a similar pattern throughout higher education, with most of the decline in retirements at later ages concentrated at large research universities. These developments are further explored in Clark and Hammond (2001).

Chart 1 presents updated data on the estimated rates at which TIAA-CREF participants retired in the year 2000. These data are constructed in the same manner as the data in Ameriks (1999): the base of each percentage (the number of "workers") in each group is the number of individuals who made any contribution to a TIAA-CREF retirement annuity contract in the year 2000. The numerator in each group (the number who "retire") is the number of those same individuals who either (1) no longer had a deferred annuity contract at TIAA-CREF as of 2001, or, (2) remitted no additional contributions on their retirement annuities for the entire calendar year 2001. (We do not have information that would allow us to determine how many members of this "retiree" group may have



1 Estimated Retirement Rates for TIAA-CREF Participants, 2000



changed pension carriers or simply changed jobs rather than retiring. It seems reasonable that career changes at these ages are relatively infrequent.)

The most important point about these data is that retirement rates for all ages are very little changed from those documented for the period 1994-1996 in Ameriks (1999). Women are still slightly more likely to retire than men at all ages, there are peaks at typical retirement ages (62, 65, and 70), and age-specific retirement rates are all within a few percentage points of what was reported in that article for the period 1994-1996. Thus the data suggest that there has been little or no change since that time in age-specific retirement rates among those age 60-72. While the above data, and both of the studies cited above, indicate little change in retirement rates at younger ages for the last 10-15 years, other research has emphasized the changing nature of retirement over this time period. Data from Taylor (1999) show that, at least at two large U.S. institutions, a large fraction of recently "retired" faculty continue to have at least some income from employment: At the University of New Mexico, 44 percent of surveyed retirees had employment income, while at the University of Rhode Island, 27 percent of surveyed retirees had some employment income. In addition, the adoption of "phased retirement" programs at many institutions may be leading to significant

Table 1 Income Options Currently Offered by TIAA-CREF

LIFE ANNUITY (SINCE 1918)

Provides income for the life of the annuitant (or annuitants, if a two-life annuity is purchased). An irrevocable contract between TIAA-CREF and the annuitant(s), this option is the only one that provides insurance against the risk that the annuitant(s) may live longer than their assets would otherwise support. Additional options can be elected (at a specified cost) that will ensure that payments will continue for at least a set minimum number of years (i.e., assuring that payments would be made to a designated beneficiary even in the case of an early death of the annuitant(s).)

NONANNUITY OPTIONS

Interest Payment Retirement Option (IPRO) (since 1989)

For individuals who do not yet want to purchase an annuity, but wish to begin receiving systematic income payments from accumulated assets in the TIAA traditional annuity. The interest credited to the TIAA traditional annuity accumulations is distributed to the participant as an income payment, while the principal balance of the accumulation remains undistributed and must later be annuitized or converted to a Minimum Distribution contract.

The Minimum Distribution Option (MDO) (since 1991)

Provides an amount of income just sufficient to avoid penalties that the federal government assesses on individuals who do not use the assets accumulated in tax-deferred retirement accounts to provide income in retirement. While lump-sum withdrawals from accumulated assets are allowed, and conversion to an annuity is generally possible, selection of particular income calculation options can preclude the later selection of a life annuity.

Systematic Withdrawals and Transfers (SWAT) (since 1996)

The participant specifies a desired schedule of payments, and regular withdrawals or transfers are made from their accumulated assets according to the schedule. Payments can be stopped or changed at any time, but will otherwise be made as long as there are assets left to fund them.

changes in the nature of work and retirement among those individuals in higher education who are in their sixties and early seventies (Ehrenberg and Rizzo, 2001).

In addition, it is clear that more and more TIAA-CREF participants are choosing to wait to begin receiving any income at all from their retirement plans. The total number of TIAA-CREF participants choosing to convert their accumulated assets into any type of periodic income stream has remained roughly constant since 1987: From 1987 to 2001, the number of participants starting to receive an income stream rose by less than 2%. At the same time, the number of participants age 55 and older with a TIAA-CREF deferred annuity (i.e., an unannuitized balance from one or more of their retirement plans) increased by 84 percent from 1994 to 2001, while the number of age 65 and older increased by 112 percent. Within this group, the set of participants who are accumulating assets but not making continuing contributions has grown even faster: by 117 percent for those age 55 and older, and by 150 percent for those age 65 and older.

Furthermore, updated calculations similar to those in Ameriks (1999) show a continued decline in the rate at which recent retirees are receiving any income at all (including one-time lump-sum or other distributions). In Ameriks (1999), which focused on a particular cohort of TIAA-CREF participants, the data indicated that for women age 65, the fraction of retirees starting to receive income within a year of retirement fell from 88.6 percent in 1987-1990 to 80.6 percent in 1994-1996. For men age 65, the decline was from 89.5 percent in 1987-1990 to 82.1 percent in 1994-1996. Recent data on those participants who were age 65 at the end of 2000, who stopped making contributions in the year 2000 (i.e., became "retired"), show slight further declines: Among men, 77.8 percent received some form of income by the end of 2001, while among women, only 72.0 percent elected to receive some form of income by the end of 2001.

TIAA-CREF participants have always had the ability to delay the start of income streams from their retirement plans. In other words, even before TIAA-CREF introduced nonannuity income options, participants could have elected to postpone the start of annuity income. While it is possible that the availability of nonannuity options is somehow related to the rate at which individuals elect to receive any income from their retirement plan balances, it seems very unlikely. The growth in the number of individuals electing not to begin receiving income may be itself a strong indicator of the changing nature of retirement among TIAA-CREF participants.

>>>TIAA-CREF INCOME OPTIONS

We now turn to data regarding the patterns in the selection of income options by those who have elected to begin an income stream. Table 1 provides a brief description of the income options generally available to TIAA-CREF participants.

Life Annuity Options

TIAA-CREF provides two basic types of life annuities: the single-life annuity, which will provide income as long as the annuitant is alive; and the joint-life annuity, which provides some income payments as long as either of the two annuitants (typically an individual and a spouse) lives. Three different survivorship options are available under the joint-life annuities; the option selected determines the level of payments that will be made to the survivor upon the death of one of the annuitants: The "Two-thirds to Survivor" option provides for 2/3 of the annuity benefit to continue to a survivor following the death of one of the annuitants. The "Half to Second Annuitant" option specifies that if the primary annuitant predeceases the second annuitant, one-half of the annuity benefit will be paid to the survivor; however, if the second annuitant predeceases the first, there will be no change in the benefit.² Finally, the "Full to Survivor" option provides for no change in the benefit upon the death of either one of the annuitants.

Payments under each of these annuity options are supported in large part by the pooling of mortality/longevity risk across annuitants that is unique to the life annuity. Because annuity income payments are only made to living annuitants, periodic payments to annuitants can be higher over their life expectancy than would be possible in the absence of such a pooling arrangement.³ But because annuity assets are pooled, a major worry that many retirees have when considering the use of a life annuity option is what will happen to the assets used to purchase an annuity in the case of their very early death. Retirees may be reluctant to enter an annuity arrangement, because they fear that they will "lose" their assets in the case of their early death. In other words, they view the purchase of an annuity as a "risky" proposition, rather than a means to reduce risk.

TIAA-CREF enables retirees to deal with this concern by allowing annuitants to elect a guaranteed period, or perhaps more accurately a "minimum payment period," when beginning an annuity income stream (either single- or joint-life). This period is simply a length of time during which income payments will be made to the annuitant(s) or a designated beneficiary, regardless of whether the annuitant(s) are alive. In other words, during the guaranteed period, income payments from the annuity are not life-contingent. If the annuitant(s) become deceased before the end of this guaranteed/"minimum payment" period, payments will continue to a designated heir or other beneficiary. After the expiration of the guaranteed period, continued payments are, however, contingent on the life of the annuitant(s).⁴

Nonannuity Options: IPRO, MDO, and SWAT

TIAA-CREF first began offering nonannuity options in 1989, with the introduction of the Interest Payment Retirement Option (IPRO). This income option enables those retirees between the ages of 55 and 69½ to choose to receive the interest credited on their TIAA traditional annuity accumulations as income. Under this income option, the principal amount of the TIAA traditional accumulation is preserved until a later date, when it must be either converted to a life annuity, a Minimum Distribution Option contract, or otherwise withdrawn.⁵ This option was intended for use by those who would like to begin to receive some amount of income from their retirement accumulations, but are not yet ready to begin a life annuity.

TIAA-CREF introduced the Minimum Distribution Option (MDO) contract in 1991. Federal regulations require that most retirement plan participants begin to receive (and to include in their taxable income) minimum distributions from their tax-deferred retirement assets by April 1 following the year they retire, or the year they reach age 70¹/₂, whichever comes later.6 TIAA-CREF routinely notifies participants and beneficiaries as they become or continue to be subject to these requirements. Employees who do not satisfy the requirements are subject to a nondeductible tax penalty equal to half of the amount that should have been distributed. The MDO mechanism provides income payments from accumulated retirement assets that are just large enough for the participant to avoid the federal tax penalties associated with failure to take distributions from tax-deferred retirement assets at the required rate. Unlike IPRO, a participant beginning an MDO contract may have the option, but is not required, to change to another distribution option. Minimum distributions can be, in most cases, subsequently converted to life annuities; alternatively they can continue as long as assets remain to be distributed.

Systematic Withdrawals and Transfers (SWAT) were automated by TIAA-CREF in 1996, and have grown in popularity since. Under systematic withdrawals, a participant simply selects a schedule and amount of payments to receive (specifying either a fixed dollar amount, or a percentage of assets, as desired) and these regular withdrawals or transfers will be made from the accumulations according to that schedule as long as assets remain. (Of course, the level of these withdrawals must meet the minimum distribution requirement for those subject to it, or the tax penalty will apply.) The participant can change the schedule as desired, and retains the flexibility to convert to other options at a later date if desired.

Another form of nonannuity benefit available to most TIAA-CREF participants are cash withdrawals in the form of a Transfer Payout Annuity (TPA) and/or the Retirement Transition Benefit (RTB). The RTB is a lump-sum withdrawal that can be used at the point of retirement in conjunction with the beginning of life annuity income, while the TPA is a form of periodcertain annuity that must be used to liquidate TIAA balances under certain plans. This article focuses on the use of the life annuity, MDO, IPRO, and SWAT options, as these generate a stream of retirement income. The issue of to what extent participants use lump-sum distributions such as the RTB and the TPA is an important one, but beyond the scope of the current article. The critical question of how such lump-sum withdrawals are used by retirees is one that in fact can only be answered by survey data. Without detailed additional survey data from individuals, there is no way to determine how, or even if, withdrawals or rollovers from TIAA-CREF are ultimately spent.

>>>THE LEVEL OF INCOME PAYMENTS

When making a decision regarding an income stream, an important consideration that a participant faces is the amount of periodic income that the choice will generate.

Life Annuities

The level of initial income provided by various annuity income options is dependent on several factors. For example, the level of income obtainable from a singlelife annuity is based on the survival probabilities of one individual, while a joint-life annuity must reflect the expected survival/mortality patterns of two individuals. In addition, the interest rate used to price the annuity is an important factor. Finally, the election of guaranteed periods and various survivorship options (for joint-life annuities) is also a factor in determining the size of the periodic income payments.

Table 2 presents a comparison of the monthly and annualized initial income streams obtainable from a hypothetical single-life annuity at various starting ages, with various guaranteed periods. The table shows the amount of initial income available from a single-life annuity, based on three different interest rate assumptions and four different retirement ages. It also shows how the payment levels are affected by the addition of a guaranteed period. Finally, it should be noted that in general, as a result of federal law, the gender of a participant is not a factor in the determination of annuity benefit levels from employer-sponsored retirement plan assets.

Table 2Initial Hypothetical Single-Life Annuity Income Levels by Interest Rate, AnnuitantAge, and Guaranteed Period

		Incon \$10,000 A	ne Per Annuitized	Payment Level with Guaranteed Period						
Interest Rate	Age	Monthly	Annualized	None	10 years	15 years	20 years			
4%	62	\$54	\$643	100.0%	98.4%	96.3%	93.4%			
	65	57	686	100.0	97.8	94.9	90.9			
	70	65	780	100.0	95.9	91.0	84.8			
	75	76	913	100.0	92.4	84.4	75.7			
6%	62	66	789	100.0	98.3	96.3	93.7			
	65	69	830	100.0	97.6	94.9	91.4			
	70	77	923	100.0	95.7	91.1	85.8			
	75	88	1,056	100.0	92.3	84.9	77.5			
8%	62	78	942	100.0	98.2	96.3	94.0			
	65	82	982	100.0	97.5	94.9	92.0			
	70	89	1,072	100.0	95.6	91.4	86.9			
	75	100	1,203	100.0	92.2	85.6	79.3			

Notes

Annualized income above is monthly income times 12; not a once-a-year annual annuity payment.

Payments are based on Annuity 2000 Mortality Table (Merged Gender Mod 1) with ages set back 2 years.

Source: Author's calculations.

The table illustrates at least three basic points:

- 1) The size of initial income payments, per dollar annuitized, increases as the interest rate used to price the annuity rises. The table shows that for a 65-year old, a 4% interest rate generates payments of \$686 per year per \$10,000 annuitized. This rises to \$830 at 6%, and \$982 at 8%. Thus the initial interest rate at which the annuity is issued has a large impact on the level of starting income.
- 2) The size of initial income payments, per dollar annuitized, rises as the age of the annuitant rises.
- 3) The use of guaranteed periods lowers the amount of income available from an annuity at any given age and interest rate. The cost of the guarantee, in terms of a reduction in the level of payments relative to an annuity with no guaranteed period, increases with the age of the annuitant.

Table 3 presents a similar comparison for the joint-life annuity options. Here the baseline level of income is

for a "Two-thirds to Survivor" option without a guaranteed period. The table does not show how interest rates affect payments as it assumes a six percent rate; however, the relation is similar to that in the single-life annuity case. The table does show similar patterns with regard to annuitant age and the election of a 20year guaranteed period. It also shows that the ages of the two annuitants and the particular survivorship option elected can interact to raise or lower the level of income relative to the baseline case.

Income from Nonannuity Options

The level of initial income available from nonannuity options generally does not depend on the large variety of factors that are involved in the annuity calculations. In the case of IPRO, the amount of income is dependent on the participant's accumulation in TIAA and the current interest rates being credited on TIAA accumulations. Depending on the history and timing of a person's contributions to TIAA, the total level of payments available via IPRO will vary. As of

Table 3Initial Hypothetical Joint-Life Annuity Income Levels by Annuitant Ages,Survivorship Option, and Guaranteed Period (Assumes an Interest Rate of 6%)

Primary Annuitant Age	Primary Second I Annuitant Annuitant		Income per \$10,000 Annuitized		Two-thirds To Survivor		to nnuitant	Full Benefit to Survivor		
ngo	ngo	Monthly	Annualized	No Guarantee	20-year Guarantee	No Guarantee	20-year Guarantee	No Guarantee	20-year Guarantee	
62	62	\$63	\$758	100.0%	99.4%	98.1%	97.7%	92.8%	92.1%	
	65	65	775	100.0	99.2	96.8	96.2	92.3	91.3	
	70	67	808	100.0	98.7	94.1	93.3	90.9	89.3	
	75	70	846	100.0	98.0	91.0	89.7	88.8	86.4	
65	62	65	775	100.0	99.2	99.2	98.6	92.3	91.3	
	65	66	794	100.0	98.9	97.9	97.1	92.0	90.6	
	70	69	830	100.0	98.3	95.2	94.0	90.9	88.7	
	75	73	872	100.0	97.3	92.0	90.3	89.0	85.9	
70	62	67	808	100.0	98.7	101.2	100.3	90.9	89.3	
	65	69	830	100.0	98.3	100.0	98.7	90.9	88.7	
	70	73	874	100.0	97.2	97.4	95.4	90.4	87.0	
	75	77	925	100.0	95.7	94.2	91.3	89.1	84.0	
75	62	70	846	100.0	98.0	103.8	102.2	88.8	86.4	
	65	73	872	100.0	97.3	102.6	100.5	89.0	85.9	
	70	77	925	100.0	95.7	100.1	96.8	89.1	84.0	
	75	82	988	100.0	93.3	96.9	92.1	88.6	80.9	

Notes

Annualized income above is monthly income times 12; not a once-a-year annual annuity payment. Payments are based on Annuity 2000 Mortality Table (Merged Gender Mod 1) with ages set back 2 years. Source: Author's calculations.

September 30, 2002, the highest interest rate being credited by TIAA was 8% (for contributions received in 2000), while the lowest was 5% (for contributions made 10/1/02-12/31/02). Thus, as of this date, IPRO payments could generate initial income payments equal to between 5-8% of the total accumulation (\$500-\$800 per year per \$10,000 of TIAA accumulation) depending on when contributions to TIAA were made. Relative to annuity payments for those age 61-69, IPRO provides income payments that are typically somewhat lower than initial annuity payments, depending on the annuity option selected.

The initial amount of income under the MDO can also vary with the age of the participant when distributions begin, and, if applicable, with the age of the designated beneficiary (and their relation to the participant). For someone who will be 71 at the end of the year in which distributions are first required, the minimum required distribution is approximately \$382 per year per \$10,000 of accumulation (assuming any beneficiary is not a spouse more than 10 years younger). This initial income level is substantially below the level of initial income payments available from life annuities to participants at this age (on the order of 50-60% lower).



t 2 Initial Income Selections by TIAA-CREF Participants, 1975 - 2001



Source: Author's calculations, based on data from TIAA-CREF Retirement Services Actuarial.

Participants combining different types of income streams are counted once for each type. Includes only those starting their first income stream.

SWAT can of course provide an arbitrary amount of income, as long as the accumulation can support the payments (and as with all distribution mechanisms, rules regarding early withdrawals and the minimum required distributions must be respected).

These data illustrate that the choice of income option can dramatically affect the amount of initial income provided to participants from their retirement assets. Individuals who are electing to take nonannuity options (other than SWAT) are choosing to receive significantly lower initial payments. All TIAA-CREF participants receive materials each year showing what their initial income payments would be assuming the use of specified life annuity options. At the time of retirement, they are also furnished with retirement illustrations showing how their choice of income options will impact their income levels. It is extremely unlikely that participants are not aware that higher initial income payments could be derived through the use of TIAA-CREF's life annuity options.⁷ The choices that individuals are making therefore do appear to be made both willingly and voluntarily, reflecting consideration of the available options.

>>> LONGITUDINAL PATTERNS IN THE SELECTION OF RETIREMENT INCOME OPTIONS

Chart 2 presents data on the changes in the use of various types of income streams (life annuities, IPRO, MDO, and SWAT) at TIAA-CREF over the period 1975-2001. These data show some remarkable changes over time. In 1975, the only distribution option available to TIAA-CREF participants was the life annuity (either single- or joint-life). Chart 2 shows that from 1975 through 1984, the single-life annuity was used by a (slight) majority of those starting an income stream from their retirement assets. From 1985 to 1988, the joint-life annuity was used by a slightly larger fraction of participants than the single-life annuity. Part of this shift in choice is perhaps related to the adoption of the Federal Retirement Equity Act of 1984, which provides that married employees (or employees who were married when they earned retirement benefits) under a plan governed by ERISA can select an option other than a two-life annuity under which the spouse is designated as the second annuitant only if the spouse agrees in writing to forgo the two-life benefit.

The chart also shows that following the introduction of nonannuity options in 1989, the decline in the proportion of participants selecting a life annuity has been dramatic. As of 2001, roughly 45% of those starting an income stream for the first time chose to use the life annuity, split roughly evenly between the joint-life and single-life options.

The data show that upon its introduction in 1989, the IPRO option was elected by 4.8% of those beginning any income stream; however, its use subsequently showed a slight relative decline from 1990-1994. As Chart 2 illustrates, since 1994 the popularity of this distribution mechanism has increased significantly, nearly tripling in terms of its share among those starting income payments (rising from 6.1% in 1995 to 17.3% in 2001).

Since 1991, the greatest growth has been in the use of the TIAA-CREF MDO. In 1991, only 1.2% of those starting an income stream used the MDO. As of 2001, MDO was being used by 27% of those who started any income stream at all. Table 4 presents further data on the patterns in the use of various income options over the period 1988-2001, and includes information on the average age of those using various options. The table is divided into two sections. The top panel shows data for those individuals beginning an income stream who chose one option only: the immediate annuity (IA), minimum distributions (MDO), TIAA interest only (IPRO), or systematic withdrawals (SWAT). The bottom panel shows the distribution for those who chose a combination involving at least one of the four income options.

These data illustrate several facts. First, the decline in the fraction choosing the life annuity only is apparent: a drop from 100% in 1988 to 45.7% in 2001. Another immediately obvious pattern is the difference in the average ages across the various payout options. For example, in all years since its introduction, the average age of participants using the MDO has been between 71.0 and 71.5 years — this is of course consistent with the fact that regulations require most retirees to begin taking minimum distributions by April 1 of the year following the year in which they turn $70\frac{1}{2}$. At the same time, the data show that the average age among those using only IPRO or SWAT is much younger: these averages have varied between 62.8 and 63.8 years. In the case of annuity income streams, the average age of participants has increased by roughly two years over the period 1988-2001, rising from 62.5 to 64.3. Overall, the data show a striking increase in the overall age at which participants are beginning to start any income stream at all: The average age at which participants begin to receive an income stream has risen from 62.5 in 1988, to 66.1 in 2001.

>>> PATTERNS IN THE SELECTION OF TIAA-CREF ANNUITY OPTIONS

Patterns by Gender

Tables 5 and 6 present detailed data on the patterns in the selection of various life-annuity options by TIAA-CREF participants beginning an annuity income stream over the period 1995-2001. Table 5 shows the annuity options selected by female primary annuitants, while Table 6 shows options selected by male primary annuitants.

Table 4 Distribution of Income Selections and Average Age, by Year

PANEL A: FRACTION CHOOSING ONE INCOME OPTION ONLY

Year	IA OI	nly	MDO (Dnly	IPRO	Only	SWAT	Only	Oth	er	Over	all
	Percent	Age										
1988	100.0%	62.5									100.0%	62.5
1989	95.2	62.8			4.3	63.0			0.5	63.4	100.0	62.8
1990	94.2	63.1			5.1	63.1			0.7	63.8	100.0	63.1
1991	93.2	63.3	0.8	71.4	4.9	62.8			1.1	66.6	100.0	63.3
1992	89.0	63.3	5.7	71.5	4.6	62.8			0.8	66.7	100.0	63.8
1993	86.8	63.8	7.9	71.5	4.5	62.8			0.9	66.5	100.0	64.3
1994	81.6	63.6	13.4	71.2	4.2	63.1			0.8	67.3	100.0	64.6
1995	77.7	63.6	15.7	71.1	5.6	63.0			1.0	66.9	100.0	64.8
1996	74.4	63.6	14.8	71.2	6.1	63.3	2.4	63.2	2.3	65.1	100.0	64.8
1997	71.3	63.8	13.8	71.2	7.4	63.2	3.5	63.8	4.0	64.5	100.0	64.8
1998	63.5	64.0	16.4	71.4	9.3	63.0	5.4	63.5	5.4	64.3	100.0	65.1
1999	55.8	64.1	21.6	71.4	10.4	63.1	6.4	62.9	5.7	64.3	100.0	65.5
2000	50.0	64.2	24.3	71.5	12.0	63.0	7.3	63.1	6.4	64.3	100.0	65.8
2001	45.7	64.3	28.1	71.3	13.8	63.2	6.5	63.5	5.9	64.0	100.0	66.1

PANEL B: FRACTION CHOOSING MORE THAN ONE INCOME OPTION

Year	Any Percent	IA Age	Any N Percent	IDO Age	Any II Percent	PRO Age	Any S <i>Percent</i>	WAT Age
1988	100.0%	62.5						
1989	95.7	62.8			4.8	63.0		
1990	94.9	63.1			5.8	63.2		
1991	94.3	63.3	1.3	71.4	5.6	62.9		
1992	89.8	63.4	6.0	71.4	5.0	62.9		
1993	87.7	63.8	8.2	71.4	5.0	62.9		
1994	82.4	63.6	13.8	71.2	4.6	63.1		
1995	78.7	63.7	16.1	71.1	6.1	63.0		
1996	76.0	63.7	15.3	71.2	7.2	63.3	3.8	63.5
1997	73.5	63.8	14.3	71.2	9.9	63.2	6.5	63.8
1998	65.9	64.1	16.9	71.4	12.9	63.1	9.7	63.6
1999	58.2	64.2	22.4	71.4	14.4	63.0	10.8	63.1
2000	52.4	64.3	25.0	71.5	16.7	63.1	12.3	63.3
2001	47.8	64.4	28.6	71.3	18.3	63.2	11.2	63.5

Source: Author's calculations, based on data from TIAA-CREF Retirement Services Actuarial.

Table 5 Initial Annuity Income Options among Female Annuitants

Selection of single- vers	us joint-life annuities							
Annuity option		1995	1996	1997	1998	1999	2000	2001
Single-life annuities		67.6%	66.6%	65.7%	67.2%	67.5%	69.3%	68.0%
Joint-life annuities		32.4	33.4	34.3	32.8	32.5	30.7	32.0
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0
Options chosen by those	selecting single-life and	nuities						
Annuity option		1995	1996	1997	1998	1999	2000	2001
No guarantee		33.7%	32.5%	31.5%	30.3%	30.0%	30.8%	28.4%
10-year guarantee		30.5	27.8	29.6	32.1	31.2	29.7	33.9
15-year guarantee		14.0	16.4	15.9	16.5	18.1	18.4	15.7
20-year guarantee		21.2	22.7	22.3	20.9	20.7	21.1	21.9
Installment refund		0.6	0.5	0.6	0.1	0.0	0.0	0.0
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0
Options chosen by those	selecting joint-life annu	ities						
Annuity option		1995	1996	1997	1998	1999	2000	2001
Full to survivor	No Guarantee	7.1%	5.4%	7.3%	7.6%	7.0%	6.7%	9.2%
	Any Guarantee	58.6	56.7	54.6	53.5	53.6	57.9	57.9
	All	65.7	62.2	61.9	61.2	60.6	64.6	67.1
Two-thirds to survivor	No Guarantee	2.2	1.6	1.9	2.3	2.3	3.8	1.9
	Any Guarantee	13.9	15.0	14.8	15.0	19.6	14.9	14.1
	All	16.1	16.6	16.7	17.3	21.8	18.7	16.0
Half to second annuitant	No Guarantee	2.3	2.8	2.4	3.0	3.3	2.0	2.8
	Any Guarantee	15.9	18.5	19.0	18.6	14.2	14.8	14.1
	All	18.3	21.2	21.4	21.5	17.5	16.8	16.9
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author's calculations, based on data from TIAA-CREF Retirement Services Actuarial.

Each table is divided into three sections. The top panel of the table simply breaks down the relevant annuitant population into two groups: those electing a single-life annuity, and those electing a joint-life annuity.

As reported by King (1996), female participants are significantly more likely to choose the single-life annuity option than their male counterparts. In 2001, 68% of the females beginning life-annuity income chose a single-life option, while only 29.5% of men did so. This pattern is only slightly changed from 1995, when 67.6% of females chose the single-life and 25.9% of males did so. One reason for this could be differences in marital status among the female and male participants beginning an income stream. Unfortunately, historical data on marital status of participants are not available.

There are only a few other notable changes in the data over this time period. Among women, there has been a slight increase over time in the election of a guaranteed period on the single-life annuity: of the women choosing a single-life annuity in 1995, 33.7% did so without opting for a guaranteed period, while as of 2001, only 28.4% did not elect a guarantee. (As Table 5 shows, the largest increase was in the election of a 10year guarantee.) In addition, the data show a very

Table 6 Initial Annuity Income Options among Male Annuitants

Selection of single- vers	sus joint-life annuitie	95							
Annuity option		1995	1996	1997	1998	1999	2000	2001	
Single-life annuities		25.9%	26.3%	26.7%	27.3%	28.5%	29.0%	29.5%	
Joint-life annuities		74.1	73.7	73.3	72.7	71.5	71.0	70.5	
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Options chosen by those	e selecting single-life	e annuities							
Annuity option		1995	1996	1997	1998	1999	2000	2001	
No guarantee		35.0%	36.4%	33.8%	34.7%	31.4%	35.5%	32.3%	
10-year guarantee		24.1	26.5	25.6	26.5	26.1	26.1	30.5	
15-year guarantee		16.2	14.3	16.3	17.6	19.2	16.8	14.3	
20-year guarantee		23.9	22.1	23.5	21.0	23.2	21.5	22.9	
Installment refund		0.9	0.7	0.8	0.1	0.0	0.0	0.0	
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Options chosen by those	e selecting joint-life	annuities							
Annuity option		1995	1996	1997	1998	1999	2000	2001	
Full to survivor	No Guarantee	8.8%	7.4%	8.3%	9.6%	9.8%	9.6%	10.0%	
	Any Guarantee	63.9	63.0	61.9	60.3	59.7	60.7	60.8	
	All	72.7	70.3	70.2	69.9	69.5	70.3	70.8	
Two-thirds to survivor	No Guarantee	3.1	2.7	3.1	3.6	3.7	3.8	4.3	
	Any Guarantee	17.7	18.9	19.0	19.5	19.7	18.9	17.7	
	All	20.8	21.6	22.2	23.0	23.5	22.7	21.9	
Half to second annuitant	No Guarantee	1.4	1.0	1.6	1.5	1.2	1.7	1.6	
	Any Guarantee	5.0	7.1	6.1	5.6	5.9	5.4	5.6	
	All	6.4	8.1	7.7	7.1	7.1	7.1	7.3	
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	

Source: Author's calculations, based on data from TIAA-CREF Retirement Services Actuarial.

slight increase in the fraction of female annuitants choosing the "Full to Survivor" survivorship option from 1995 to 2001. There was a corresponding decline in the fraction of women choosing the "Half to Second Annuitant" option, while the use of the "Two-thirds to Survivor" option has remained fairly flat.

Among men choosing the single-life annuity option, Table 6 shows a similar slight increase in the use of the 10-year guaranteed period can be observed from 1995-2001. In 1995, 35.0% of males using the singlelife annuity did so without electing a guaranteed period; in 2001, 32.3% did so. At the same time the use of the 10-year guarantee rose from 24.1% to 30.5% in 2001. The data for men show only a very slight change in the use of the various survivorship and guaranteed periods under the two-life annuity.

Among both men and women choosing a joint-life annuity, the data show a strong preference for the "Full-to-Survivor" option. In addition, among both men and women there is a strong preference for guaranteed periods. Among those electing single-life annuities, roughly two-thirds chose a guaranteed period, while among those electing joint-life annuity, over 85 percent opted for a guaranteed period.



Chart 3 First Life Annuity Issue Ages, 1980-2001

Source: Author's calculations, based on data from TIAA-CREF Retirement Services Actuarial.

Patterns by Age

Chart 3 shows the overall patterns in the age distribution of the individuals beginning annuity income over the period 1980-2001.⁸ The chart shows that the fraction of annuitants who begin income streams before the age of 65 rose gradually from 1980 (36.3%) to 1987 (44.3%), and has remained roughly constant ever since. At the same time, the fraction of the population beginning annuity income at age 65 has fallen roughly in half (by approximately 20 percentage points) since the early 1980s. There has been a slow, yet steady increase in the proportion beginning annuity income at age 66-69, and a significant increase, followed by a decline after 1991, in the fraction beginning annuity income at age 70 or 71. The fraction starting annuity income after the age of 71 increased slightly in the 1980s, then fell through the early 1990s, and appears to be growing again in the early part of the 21st century.

>>>SETTLEMENT SEQUENCE

Until 1989, the only type of income stream available was the life annuity. However, participants were not required to convert all of their accumulated assets to an

Table 7Change in the Use of Income Methods After Second Choice of Income Option,1989-2001

		After Second Income Choice												
After First In	After First Income Choice			nuity		Minimum Distribution			Interest	Payments	SWAT	All		
		IA Only	+MDO	+IPRO	+SWAT	MDO Only	+IPRO	+SWAT	IPRO Only	+SWAT	Only	Others	Total	
	IA Only	55.5%	41.1%	1.3%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	100.0%	
Life Annuity	+MDO	0.0	96.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	100.0	
Life Annulty	+IPR0	0.0	0.0	74.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.7	100.0	
	+SWAT	0.0	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	100.0	
MDO	MDO Only	0.0	50.1	0.0	0.0	46.4	0.0	3.2	0.0	0.0	0.0	0.3	100.0	
Interest	IPRO Only	0.0	0.0	58.0	0.0	0.0	20.6	0.0	9.1	8.7	0.0	3.5	100.0	
Payments	+SWAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	72.7	0.0	27.3	100.0	
Withdrawals Only		0.0	0.0	0.0	10.5	0.0	0.0	19.4	0.0	13.2	55.9	1.0	100.0	

Notes

Includes all participants making a second income option decision in a calendar year after their first income choice. Excludes 3 individuals who chose MDO with other nonannuity options as their initial choice.

The data in the table show the change in the history of income options used following the second decision is made. In other words, some of those who started IPRO as a first choice stopped IPRO at the time they made their second choice, the table does not indicate how many individuals stopped using a particular income method at the time of their second choice. Source: Author's calculations, based on data from TIAA-CREF Retirement Services Actuarial.

annuity. If desired, it was possible to use only a portion of the accumulation to fund the annuity. As more income options became available, with features tailored to individuals at different points in the transition to retirement, many participants have started income using one income option, and then later added either more income or income from a different option.

Table 7 breaks down the use of various income options by those beginning an income stream for the first and then for the second time. In other words, for those who came to TIAA-CREF a second time to start a new income stream, it shows what combination of income options they ended up with after starting the second stream. For example, of those whose first income choice was a life annuity only, 55.5% still had a life annuity only after starting a second stream — in other words, they started another life annuity. However, 41.1% of this same group ended up with a life annuity and an MDO contract. A small minority added IPRO or SWAT streams. For those whose first stream was an MDO contract, 50.1% started a life

annuity contract as their second choice. While some of this may be the conversion of MDO contracts to life annuities, this pattern does not necessarily mean participants are converting their MDOs to annuities: many participants still working over the age 70¹/₂ may have to take minimum distributions from accumulations earned under a prior employer's plan — thus their first income stream is minimum distributions, although they are still working. When they do retire, they must begin to take income from their current employer's plan as well — which they may decide to take as an annuity. Almost all others with MDOs only who made a second choice chose to start another MDO stream. For those whose first choice was IPRO only, nearly 60% began an annuity as their second choice, while 21% chose MDO. Finally of those who began an income stream with SWAT only, the second choice of about 11% was a life annuity, 19.4% chose an MDO, and 13.2% chose IPRO (the remaining individuals began another SWAT stream).

>>> CONCLUSIONS

This article describes the income options available to TIAA-CREF participants and illustrates the basic patterns in the choice of TIAA-CREF participants, focusing on the period 1995-2001.

As pointed out in the introduction, this study focuses on the income options chosen by those who have elected to begin taking income. Over the 1990s, there have also been some striking trends in the frequency with which TIAA-CREF participants are electing to begin to take income from their accumulated assets. There has been an increase in both the number of participants continuing to make plan contributions at older ages and the number of participants who have stopped making retirement plan contributions, but still have assets accumulating on their annuity contracts.

The data also indicate that the frequency of retirements at ages under 70 remained roughly constant throughout the 1990s. Given this, it seems reasonable to conclude that many of these changes in the usage of TIAA-CREF income options may be related to the changing nature, rather than incidence, of retirement at many U.S. colleges and universities. In this new environment, participants' need for income from retirement assets may no longer coincide with their decision to leave full-time work. In particular, participants may substitute income generated by part-time employment for income generated from accumulated retirement assets. This may be happening both formally, through specified phased retirement programs, and informally, as retirees choose to continue to engage in some form of employment during at least the first few years of their "retirement."

Much of the data we have seen is consistent with this story. For example, from the early 1990s to 2001, the most commonly used nonannuity options were MDO and IPRO.⁹ IPRO is by its very nature an "interim" income choice: at some point IPROs must be annuitized or converted to minimum distribution. The increasing use of this option is therefore perhaps most consistent with retirees taking a "wait and see" attitude with regard to annuitization.

In addition, the data also show that nearly three-quarters of those who do choose to begin life annuity income elect a guaranteed period along with the

purchase of the annuity. As illustrated in the Appendix of Ameriks (1999), at younger ages the use of guaranteed periods with an annuity and the deferral of annuitization itself are to some extent substitutes. For example, assuming the same underlying investment returns and investment costs, the income available after the age of 75 to someone who started a fixed single-life annuity at age 65 with a 20-year guarantee is only 3-5% higher than the level of income that would be available to someone who took withdrawals of the same size as the annuity payments from age 65-75, and then purchased an annuity with a 10-year guarantee with the balance remaining at age 75. Given this modest cost, individuals may be electing to delay annuitization for a significant time after they retire, preferring instead to "keep their options open" at the cost of what they perceive as a slight reduction in their post-75 income.¹⁰

An important emerging issue that may have significant policy ramifications involves the increasing use of the MDO. In a pattern similar to what Madrian and Shea (2001) document among 401(k) plan contributors, it is possible that the decisions of at least some retiring TIAA-CREF participants may reflect inertia in decision-making coupled with the presence of the MDO "default" (i.e., a choice that is required when no alternative selection is made) with regard to receiving income in retirement.

Prior to 1989, the life annuity was the "default" (and only) option for receiving an income stream from TIAA-CREF. But since its introduction in 1991, the MDO has effectively become the "default" option: in the absence of an active alternative choice, in order to avoid tax penalties, participants will have to use the MDO. It is even possible that individuals may come to perceive the MDO as some sort of "official" or "government sanctioned" distribution mechanism for their retirement assets.

Among pre-retiree TIAA-CREF participants, there appears to be significant inertia with regard to asset allocation decisions: a large number never make changes to their asset allocations even after long periods of time and large fluctuations in financial markets (Ameriks and Zeldes, 2001). Given inertia in this and other aspects of participant behavior, it is possible that at least some participants might adopt the MDO at age 70½, become more or less comfortable with the amount of income it provides, and then never reconsider the decision. Whether this is happening, and what the implications of such behavior are, may be important areas for future research.

The current menu of nonannuity income options has been available to retirees for less than ten years. For most individuals who were presented nonannuity options, it will still be several years before we will know exactly how successfully retirees combine the various income options to fund the full span of their retirements, and in particular, whether they will ultimately make use of the annuity options available to them.

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ENDNOTES

- ¹ For earlier research on these issues, see Ameriks (1999), TIAA-CREF (1998), and King (1996).
- ² This form of benefit and the "Full Benefit to Survivor" option are used in many of the annuity arrangements made through defined-benefit (DB) plans. The "Two-thirds to Survivor" option is not typical of most DB plans; this option is the only one that provides lower benefits to the primary annuitant upon the death of the secondary annuitant.
- ³ For further description and details regarding the use of annuities to provide income in retirement, see Mitchell and McCarthy (2002).
- ⁴ Essentially, the guaranteed period combines a period-certain annuity (i.e., a reverse amortization) without a life contingency, with the purchase of a deferred contingent life annuity that will begin after the amortization is complete.
- ⁵ For RA or GRA contracts, this is done via the Transfer Payout Annuity (TPA).
- ⁶ The rules governing minimum distributions have had an interesting and convoluted history. In April 2002, the IRS issued final regulations governing the required minimum distributions that clarified and simplified some provisions related to minimum distributions. For a detailed discussion and analysis of the regulations, see Warshawsky (1998) and Warshawsky (2001).
- ⁷ For all payment mechanisms (other than an extremely low and therefore indefinitely supportable level of fixed systematic withdrawals) the amount of income that the participant will receive will change over time, reflecting investment performance and other factors. All TIAA-CREF pension annuities have at least some variable components.
- ⁸ These data differ slightly from those presented by King (1996), as a result of the difference in the way that ages and start dates are prepared here. The overall patterns are very similar.
- ⁹ Of course, the SWAT mechanism has been available for a significantly shorter period of time.

¹⁰ The assumption of similar net investment performance inside and outside the payout annuity is critical here. For example, renewal dividend interest rates for TIAA payout annuities are currently generally higher than the dividend rates credited on accumulating annuities. If this pattern persists, the cost of delaying annuitization of a TIAA accumulation will be higher than these simple calculations suggest.

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